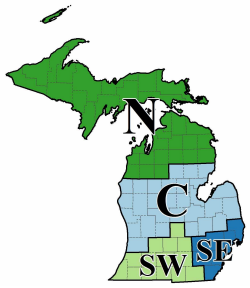

MI FluFocus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories

Michigan Department of Community Health
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Current Influenza Activity Levels:

- **Michigan:** No activity
- **United States:** Reporting has concluded for the 2009-2010 influenza season

Updates of Interest:

- **National:** CDC releases a Health Advisory regarding a recent increase in influenza A (H3N2) cases (see page 3).

Table of Contents

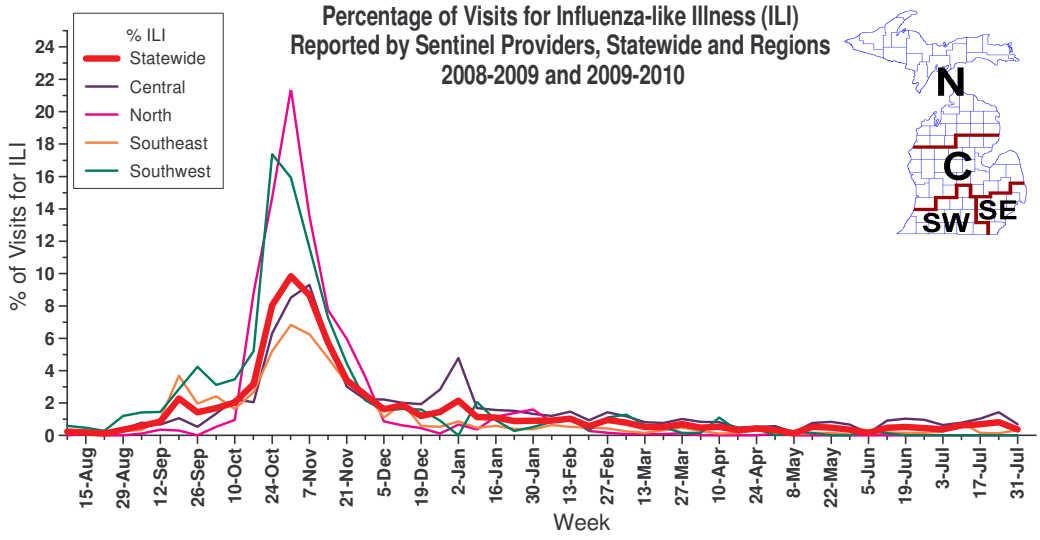
Influenza Surveillance Reports

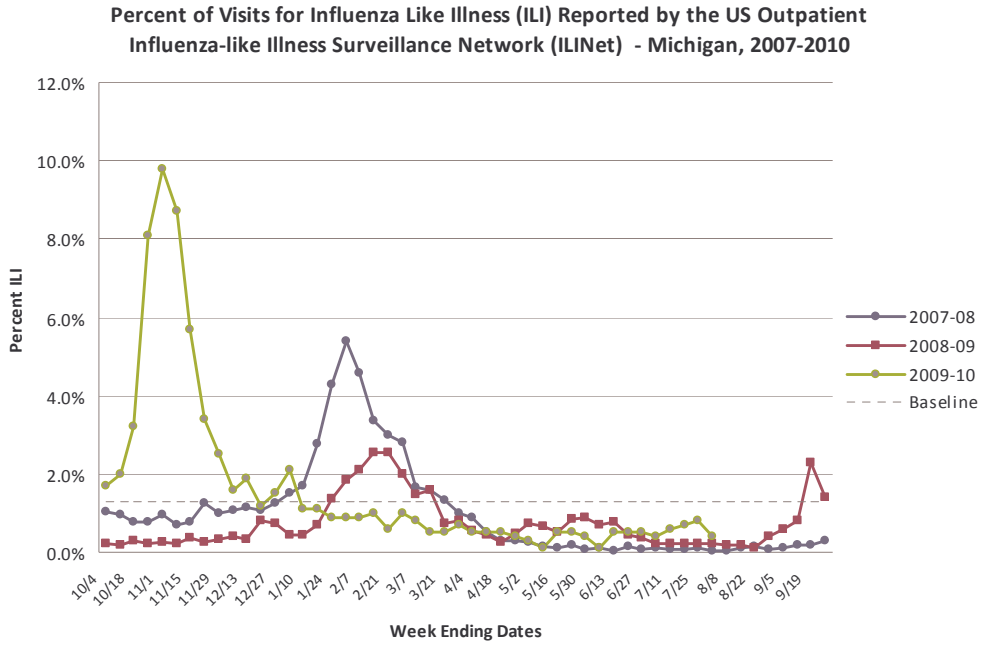
Michigan Disease Surveillance System: MDSS data for the week ending July 31th indicated that aggregate influenza case reports remained at baseline summer levels. Individual reports, including influenza and 2009 novel influenza cases, remained near the previous week's reported levels of little to no activity. Aggregate influenza cases are similar to levels seen during the same reporting period in 2009, while individual influenza reports are slightly lower.

Emergency Department Surveillance: Emergency department visits from constitutional complaints were comparable to the previous week's levels, while respiratory complaints decreased slightly. Respiratory complaints have slowly but steadily declined since late February. Both constitutional and respiratory complaints are at similar levels compared to the same reporting period last year. In the past week, there were six constitutional alerts in the C(3), SE(1), SW(1) and N(1) Influenza Surveillance Regions and one respiratory alert in the C Region.

Over-the-Counter Product Surveillance: Over the past week, all OTC product sales remained similar to last week's levels. All indicators are consistent with levels seen at this time last year, except for chest rubs and cough/cold aides, which are slightly increased.

Sentinel Provider Surveillance (as of August 5): During the week ending July 31, 2010, the proportion of visits due to influenza-like illness (ILI) slightly decreased to 0.4% overall. Sixteen patient visits due to ILI were reported out of 4,275 office visits. Nineteen sentinel sites provided data for this report. Activity slightly increased in one surveillance region: Southeast (0.3%); decreased in one surveillance region: Central (0.7%); and no ILI activity was reported in the remaining two regions: Southwest and North. Please note that a small number of sentinels submitted reports, and these rates may change as additional reports are received.





As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

Laboratory Surveillance (as of July 31): During July 25-31, no influenza isolates were identified at the MDCH Bureau of Laboratories. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 611 influenza isolates:

- 2009 Influenza A (H1N1): 609
- Influenza A (H3): 1
- Influenza B: 1

Six sentinel laboratories reported for the week ending July 31, 2010. All laboratories (SE, SW, C, N) reported no influenza A or B positive test results, with very few specimens being tested.

Michigan Influenza Antigenic Characterization (as of August 5): One 2009 H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010-11 Northern Hemisphere vaccine.

Michigan Influenza Antiviral Resistance Data (as of August 5): MDCH has received 34 results for antiviral resistance testing for the 2009-2010 season. All of the specimens tested were pandemic 2009 influenza A (H1N1) viruses. Of these results, two viruses have shown resistance to oseltamivir. The first virus was obtained in November 2009 from a 3 year old child from the SE Region with an underlying immunosuppressive condition and had a multiple courses of oseltamivir prior to specimen collection. The second virus was obtained in December 2009 from a 52 year old from the SE Region with an underlying immunosuppressive condition and chronic pulmonary infection; laboratory testing has confirmed that this mutation occurred within the patient during his illness. The 34 specimens tested were distributed as follows: 9 Southeast, 8 Southwest, 9 Central, 2 North, 6 unknown.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at http://www.cdc.gov/H1N1flu/recommendations.htm.

Influenza-Associated Pediatric Mortality (as of August 5): Five 2009 H1N1 influenza-associated pediatric mortalities (SE(3), SW, N) have been reported to MDCH for the 2009-2010 influenza season.

***CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of August 5): Seven congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (2SE, 3 SW, 1C, 1N), and three outbreaks associated with positive influenza A tests (2C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are 8 school facilities and 2 long term care facilities. Human metapneumovirus was confirmed in one outbreak in a long term care facility (SW) in February. Adenovirus was confirmed from one outbreak in an elementary school (SW) in May.

During fall 2009, 567 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 55, Region 2N - 4, Region 2S – 8, Region 3 - 54, Region 5 - 153, Region 6 - 100, Region 7 - 109, Region 8 - 84) were reported.

National (CDC Health Advisory [edited], August 4): Summary**:** Influenza A (H3N2) virus infections have been recently detected in people in a number of states across the U.S., including two small localized outbreaks. Sporadic cases of influenza and localized summer outbreaks from seasonal influenza viruses are detected each summer. Clinicians are reminded to consider influenza as a possible diagnosis when evaluating patients with acute respiratory illnesses, including pneumonia, even during the summer months. Treatment decisions should not be made on the basis of a negative rapid influenza diagnostic test result since the test has only moderate sensitivity. False positive results also can occur, particularly at times when overall influenza prevalence is low. For patients for whom laboratory confirmation is desired, or to confirm initial influenza cases in a community in which cases have been tested by rapid influenza diagnostic tests, it is recommended that reverse transcriptase -polymerase chain reaction (RT-PCR), and/or viral culture is utilized. Clinicians should use empirical treatment with influenza antiviral medications for persons hospitalized with suspected influenza, and for suspected influenza infection of any severity in high-risk individuals, regardless of influenza immunization status. Early initiation of treatment provides more optimal clinical responses, although treatment of moderate, severe, or progressive disease begun after 48 hours of symptoms can still provide benefit.

National: To access previous Center for Disease Control and Prevention weekly surveillance reports, visit http://www.cdc.gov/flu/weekly/fluactivity.htm.

International (WHO Pandemic Update 111 edited], July 30): Worldwide, overall pandemic and seasonal influenza activity remains low. In the southern hemisphere (where the winter season is in progress), current influenza activity remains variable: ranging from low and stable activity in Chile and Argentina, to low but increasing activity in Australia and New Zealand, to elevated and recently peaked activity in South Africa. Significant seasonal and pandemic influenza virus transmission continues to be detected at variable levels across parts of the tropics, particularly in several countries of the Americas and South and Southeast Asia.

In the southern hemisphere, overall influenza virus transmission remains low to sporadic, except in South Africa, where recent wintertime influenza activity appears to have peaked, and in Australia and New Zealand, where influenza activity remains low but continues to increase steadily, particularly in recent weeks. In South Africa, virologic data from outpatient sentinel surveillance suggest that the current period of influenza activity (primarily attributable to circulating seasonal influenza H3N2 and B viruses) began and rose sharply during early June 2010, with a likely peak and decline in activity occurring since the first week of July 2010. Data on the full extent of severe illness associated with recent influenza activity are not yet available, however, early reports suggest the current influenza season has been generally mild in terms of levels of clinical disease in the population. In Australia, overall rates of ILI remain low and have increased only slightly over the past four weeks (through the second week of July 2010); however, of note, the number of viral respiratory disease presentations to the emergency departments in Western Australia increased more dramatically during the same period. Overall, the proportion of respiratory specimens testing positive for influenza virus was 5% at sentinel laboratories across Australia, of which approximately two-thirds were pandemic influenza viruses and one-third were seasonal influenza H3N2 viruses; respiratory viruses other than influenza continue to predominant in several regions of Australia. In New Zealand, rates of ILI are below the seasonal baseline but have increased steadily over the past month; recent reports suggest that more significant, but geographically uneven increases may have occurred during the third week of July 2010. Although the number of influenza virus detections remains low, the majority of virus isolates in New Zealand have been pandemic influenza virus. The most recent available virologic surveillance data (mid-July 2010) from Chile and Argentina indicate that very low levels of influenza viruses are currently circulating in the southern temperate regions of the Americas; the predominant circulating influenza viruses in Chile and Argentina are pandemic and seasonal influenza type B viruses, respectively. Recently data from Chile also indicate that overall levels of ILI in the

population remain very low, except in the Los Lagos region, which has seen recent late season increases in levels of ILI slightly above the epidemic threshold.

In Asia, the most active areas of pandemic influenza virus transmission currently are in parts of India, particularly in several western and southern states. The majority of new cases continue to be reported in the southern state of Kerala and in the western state of Maharashtra, the later of which reported a sharp increase in the number of cases, including small numbers of fatal cases, between the second and third week of July 2010. Smaller numbers of new cases have also been recently reported in other southern states and in the eastern state of West Bengal. In neighboring Bangladesh, low level co-circulation of pandemic and seasonal influenza type B viruses continued to be detected over the month of July 2010. In Southeast Asia, low levels of pandemic influenza virus circulation were detected in several countries during July 2010, including Cambodia, Singapore and Malaysia. Significant levels of seasonal influenza H3N2 viruses continued to circulate in Singapore.

In sub-Saharan Africa (excluding South Africa), limited data indicate that seasonal influenza H3N2 and B viruses continued to circulate in parts of eastern Africa (Kenya) and central Africa (Cameroon), respectively. Ghana, in West Africa, reported sustained transmission of pandemic influenza virus during June and early July 2010.

In the tropical regions of the Americas, active subregional co-circulation of seasonal and pandemic influenza viruses was detected during July 2010. Since early June 2010, predominantly seasonal influenza H3N2 viruses have circulated in Panama and Nicaragua; predominantly seasonal influenza B viruses in El Salvador and Bolivia; and predominantly pandemic influenza viruses in Costa Rica and Columbia.

In the temperate regions of the Northern hemisphere, pandemic and seasonal influenza viruses have been detected only sporadically or at very low levels during the past month.

Weekly reporting of influenza activity to the CDC has concluded for the 2009-2010 season.

For additional flu vaccination and education information, the MDCH *FluBytes* newsletter is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Novel Influenza Activity and Other News

WHO Pandemic Phase: Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

International, Human (WHO, August 3): The Ministry of Health of Indonesia has announced a new case of human infection of H5N1 avian influenza. A 34-year-old female from Tangerang District, Banten Province developed symptoms on 2 July, was hospitalized on 4 July and died on 7 July. Laboratory tests were positive for H5N1 virus infection. Investigations into the source of her infection are ongoing. Of the 168 cases confirmed to date in Indonesia, 139 have been fatal.

International, Human (Emerging Infectious Diseases, July 30): Carcione D, Giele C, Dowse GK, Mak DB, Goggin L, Kwan K, et al. Comparison of pandemic (H1N1) 2009 and seasonal influenza, Western Australia, 2009. Emerg Infect Dis. 2010 Sep; [Epub ahead of print]

Abstract: We compared confirmed pandemic (H1N1) 2009 influenza and seasonal influenza diagnosed in Western Australia during the 2009 influenza season. From 3,178 eligible reports, 984 pandemic and 356 seasonal influenza patients were selected; 871 (88.5%) and 288 (80.9%) were interviewed, respectively. Patients in both groups reported a median of 6 of 11 symptoms; the difference between groups in the proportion reporting any given symptom was <10%. Fewer than half the patients in both groups had >1 underlying condition, and only diabetes was associated with pandemic (H1N1) 2009 influenza (odds ratio [OR] 1.9, 95% confidence interval [CI] 1.1–3.5). Of the patients, 129 (14.8%) persons with pandemic (H1N1) 2009 and 36 (12.5%) persons with seasonal influenza were hospitalized (p = 0.22). After controlling for age, we found that patient hospitalization was associated with pandemic (H1N1) 2009 influenza (OR 1.5; 95% CI 1.1–2.1). Contemporaneous pandemic and seasonal influenza infections were substantially similar in terms of patients' symptoms, risk factors, and proportion hospitalized.

Michigan Wild Bird Surveillance (USDA, as of August 5): For the 2010 season (April 1, 2010-March 31, 2011), highly pathogenic avian influenza H5N1 has not been recovered from 9,519 samples tested nationwide, including 673 Michigan samples (5 live bird, 658 hunter-killed birds, 10 morbidity/mortality). For more information, visit the HPAI Early Detection Data System at http://wildlifedisease.nbii.gov/ai/.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at http://www.michigan.gov/emergingdiseases.

International Poultry and Wild Bird Surveillance (OIE): Reports of avian influenza activity, including summary graphs of avian influenza H5N1 outbreaks in poultry, can be found at the following website: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm.

For questions or to be added to the distribution list, please contact Susan Peters at PetersS1@michigan.gov

Contributors

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MDCH Bureau of Laboratories – Anthony Muyombwe, PhD; Victoria Vavricka, MS

Table 1. H5N1 Influenza in Humans - Cases up to August 3, 2010. http://www.who.int/csr/disease/avian_influenza/country/cases_table_2010_08_03/en/index.html. Downloaded 8/4/2010. Cumulative number of lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		2010		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	1	0	1	1	10	8
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	1	1	39	26
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	39	4	20	8	110	35
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	21	19	6	5	168	139
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	7	2	119	59
Total	4	4	46	32	98	43	115	79	88	59	44	33	73	32	35	17	503	299